



Development of Video Modelling of Freestyle Swimming in High School Physical Education

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Abstract

This study aims to develop a video modelling of freestyle swimming in high school physical education (PE). This study uses Borg & Gall research and development (R&D) method which has been developed by Sugiyono that has two stages; pre-development and development stage. Pre-development was including small-scale and large-scale trial experiments which were conducted with five and ten ten-year students, respectively, participated from Batik 1 Surakarta High School. Then, the development stage was included 20 ten-year students of the same school. They were assigned into two groups randomly. The experimental group, including 10 students, was received the video modelling of freestyle swimming learning materials, while the control group including 10 students was taught by the teacher that consisted of the same learning materials as those used by the experimental group. The result shows that the experimental group has better performance in freestyle swimming technique than the control group. The video modelling is categorized as very good product with 80% percentage score. This means that the video modelling has been properly used and declared as effective freestyle swimming learning media for high school students.

Keywords: Video Modelling; Freestyle Swimming Technique; High School; Physical Education

1. Introduction

Education is “a conscious and deliberate effort to create a learning process and atmosphere so that learners are actively developing their potential of themselves in order to get spiritual intelligence, self-control, personality, intelligence, good characters, and the skills that needed by themselves, society, and nation” (The rules of National Education Systems Number 20, 2003 chapter 1 verse 1). According to Arifin (2013), physical education (PE) outcomes are to teach and encourage students to do movement exploration setting to promote health. PE is related of maintaining the human body through physical exercises. These activities benefits the students such as promoting social values, morals and others. It also provides cognitive, affective, and psychomotor developments benefits. According to the National Education Standards Agency (2006) PE provides an opportunity for students to integrate academic concept from other subjects which will develop fitness related academic foci, physical world, intellectual and practical skills including critical thinking and reasoning, personal (moral) and social responsibility such as

foundations and skills for lifelong learning that are systematically designed by educators supporting national education goals.

PE is practiced extensively across compulsory curriculum at secondary education. The field of study which learns about PE is sports pedagogy. Adang Suherman (2009) states that sports pedagogy is a sports science that teaches about the basics of teaching for teachers in facilitating an effective and efficient learning of PE. Through sports pedagogy, teachers can promote the PE learning outcomes well. The objectives of secondary PE are developing self-management skills such as maintaining physical fitness and healthy lifestyle through a variety of physical and sports activities, promoting physical growth and better psychological development, encouraging basic movement skills, leading foundation good character and positive attitude such as sportsmanship, honesty, discipline, responsibility, cooperation, confidence and democracy, developing social, environmental and self awareness by internalizing the values in PE activities, and understanding the concept of physical activity and exercise in good hygiene along with other health topics. Secondary PE aims to encourage psychomotor learning in a play or movement exploration setting such as games, gymnastics, athletics, swimming and martial arts.

As general education, PE objective learning will be achieved supporting by educational components such as lesson plan incorporating in curriculum, teachers, students, educational facilities including effective learning media and affordable tools. These can be used by teachers to promote psychomotor skills of students through effective and efficient learning considering local-environmental condition. Secondary students are expected to have some competencies such as playing games like football, futsal, athletics, martial arts, gymnastics, swimming, good hygiene lifestyle, and the medicine wheel. Based on the competencies, swimming is one of activities which including complex movement skills. It needs not only affordable swimming pool but also long-period of learning time. Based on a survey in one of secondary school in South Bengkulu, it is shown that the facilities of swimming activity has been inadequate so that will interfere the learning process. In addition, learning medias related to basic movement swimming skills also has been not provided yet by schools. Furthermore, based on interview, the teachers said that they have problems related to time-management in teaching swimming skills because PE only has time two meeting with 2 of 45 minutes period for swimming class. These problems lead not effective learning in swimming lesson. Therefore, researchers is intrigued to develop the media which is video modelling of swimming technique for secondary physical education which can be used to promote effective learning process.

2. Method

This study uses research and development methods (R&D) which is a research method to produce certain products based on needs in the field. This study aims to develop a video modelling of freestyle swimming technique in high school physical education (PE). This research is conducted at Surakarta Batik 1 High School for four months from October 2018 to January 2019.

This study uses Borg & Gall research and development method which has been developed by Sugiyono that has two stages; pre-development and development stage. The pre-development stage includes (1) Preliminary Study and (2) planning research, while the

development stage includes (1) preparation of the prototype; (2) expert validation; (3) small scale trial experiment; (4) large-scale trials experiment and effectiveness tests; (5) operational products. The subjects are PE teacher, swimming expert, media expert, and 20 ten-year students of Batik 1 Surakarta High School. In pre-development is including small-scale and large-scale trial experiments which are conducted with 5 and 10 students respectively. Then, the development stage is included 20 ten-year students of the same school. They are assigned into two groups randomly. The experimental group, including 10 students, is received the video modelling of freestyle swimming technique materials, while the control group including 10 students are taught by the teacher that consisted of the same learning materials as those used by the experimental group.

Data collection techniques are prominent step in research because its main objective is to obtain data (Sugiyono, 2015). In this research, data collection techniques are involved observations, interviews, and questionnaires. The design involved a qualitative inquiry where data is collected through expert interviews and observations during preliminary studies, and questionnaires sheets for the experts-assessment of product and prototype-and-product trial experiment results, while a quantitative inquiry where data is collected from the assessment of expert related to evaluations of the product designed. The instrument of data collection is measuring instruments used to obtain data from a study (Ali, 2010). The instruments are unstructured interviews and scale-based questionnaires for PE teachers at that school. According to Nazir (2013), collecting data with interviews is the process of obtaining information from interviewees using a tool called an interview guide. An unstructured interview technique is a free interview technique where researchers do not use interview guidelines that have been systematically and completely arranged for data collections. (Sugiyono, 2012).

The questionnaires are essential in measuring a respondent's opinion or attitude towards a given prototype for recommendation in designing and developing the product. Then the product is validated by the construct and media experts. The use of scale questionnaire is used to measure attitudes, opinions and perceptions of a person or a group of people about a phenomenon (Sugiyono, 2015). The point scale of the questionnaire is involving score 1 to 4, with details as follows: (a) score 1 stands for "very poor", (b) score 2 stands for "poor", (c) score 3 stands for "good", and (d) score 4 stands for "very good". The product that will be developed is a video modelling.

Data analysis techniques of this study is descriptive data analysis techniques to analyze data that has been collected without any generalizing-intervention (Sugiyono, 2012). The data analysis techniques involve qualitative descriptive data analysis and quantitative descriptive data analysis. Qualitative descriptive data analysis is analysed based on expert interviews and observations during preliminary studies, and questionair sheets for the experts-assessment of product and prototype-and-product trial experiment results, while a quantitative data analysis where data is analysed from the assessment of expert related to evaluations of the product designed. The point scale of the questionnaire for this study involving scoring 1 to 5, based on considering the raw score which converted to a percentage, then it is determined by using an assessment norm that refers to the benchmark reference assessment (PAP) with the following percentage ranges:

Table 1. Conversion of Benchmark Reference Assessments.

Point	Percentage	Description
1	80% - 100%	Sangat Baik (very good)
2	70% - 79%	Baik (good)
3	60% - 69%	Cukup Baik (fair)
4	45% - 59%	Kurang Baik (poor)
5	< 44%	Sangat Kurang Baik (very poor)

(Sudjiono, 2013)

3. Results and Discussion

Freestyle swimming is called the trudgen, this term was introduced by Jhon Arthur Trudgen in 1973. Jhon imitated the movement from Americans (Anandita, 2010). This Trudgen is swimming stroke evolved out of freestyle and breast-stroke swimming. In 1902, Richard Cavill developed a freestyle swimming known as the Crawl Australian style or better known as freestyle stroke or crawl. Freestyle swimming is a style of swimming with the position of the chest facing the surface of the water. The arms execute alternating movements. One arm moves backward in the water from an overhead position towards the hip and provides propulsion. The other arm recovers above water from the hip towards the overhead position.

According to the Bureau (2015) freestyle swimming is swimming with natural stroke. Freestyle is the fastest and most efficient of swimming strokes. It caused of the ideal body position technique, namely: the right head position, straight back and hip position. Freestyle swimming is the swimming style like an animal swim. Freestyle or front crawl technique is also called as "dog-style swimming". The basic technique for freestyle swimming must be mastered including such as basic techniques of leg movement, arm movement and breathing technique. According to Sugiyanto and Agus (2005) the basic motion stages of swimming that are learned are gliding techniques, legs movement, arm movements, breathing, and coordination. The following are the stages of basic freestyle swimming strokes:

1. Gliding Technique
 - a Take position of the body stands against the wall of the pool
 - b Bend your knees
 - c Push off the pool wall with the feet

- d Straight your entire body in the water with your clasped hands out in front, and
 - e your head tucked tightly between your arms
2. Leg movements
- a Rhythmic flutter kick.
 - b Start fluttering from the hip
 - c The knees also bends a little bit. The foot goes in plantar flexion (toes pointed), both by muscle control movement and by the pressure of the water against the foot as it moves downward
 - d The hip is locked in place while the knee is extended. The toes are still pointed.
 - e The upbeat movement of the leg starts while the knee is still extending. In fact, while the leg moves upward, the pressure of the water against the lower leg will straighten it.
3. Arm movements
- a Swing arm alternately
 - b The hand enters and catches the water thumb side down.
 - c The hand sweeps through the water as the arm pulls under the body, towards the hip
 - d The hand then reaches forward under the water without over stretching until the arm fully extends just under the water surface.
 - e The elbow bends and leads the movement backward and remains high throughout the propulsive phase
 - f The hand pulls through towards the thigh and upwards to the water surface.
4. Breathing
- a Breathing technique when swimming is important. Breathing in the freestyle strokes greatly influences the body's balance for the stream line.
 - b The rotation when breathing towards the axis of the line along the body, so that the head will not rise too high from the surface of the water. There is a certain rhythm between the arms, leg and the body strokes.
 - c For students by taking the right breath turn to the right; turn the head turned towards the arm to take a breath, while the right arm gets under water. When the right arm pushes, the mouth is opened above the surface of the water, and do breathing.
 - d When recovering phase of the right arm, the head turns downward and exhales before the head is turned upward.
5. Coordination
- a Do the gliding movement first
 - b Flutter rithmatics legs and arm
 - c Move arm alternately while the right arm gets under water, the left arm is straight on the water surface.
 - d When the left arm is on the surface of the water in a straight position, the head turns upwards and takes a breath using the mouth.
 - e When your right arm starts to rise upward, the left arm prepares to do the pull-push technique, while the head is rotated facing the bottom of the pool and then exhales properly.
 - f Do all in appropriate rhythm.

Based on the results of expert evaluations and assessments, product trials experiment, and effectiveness tests, this research developed a video modelling of freestyle swimming technique in high school physical education (PE) and it is shown as effective and efficient learning media.

Table 2. Opening Appearance

Visual	
Verbal	PEMBELAJARAN GERAK DASAR RENANG
Audio & Transcript	Audio: Bensound-creativeminds.mp3
Visual	
Verbal	PEMBELAJARAN GERAK DASAR RENANG PASCASARJANA UNIVERSITAS SEBELASMARET
Audio & Transcript	Audio: Bensound-creativeminds.mp3
Visual	
Verbal	TAHAP 1 GERAKAN MELUNCUR TAHAP 2 GERAKAN TUNGKAI TAHAP 3 GERAKAN LENGAN TAHAP 4 PERNAPASAN TAHAP 5 KOORDINASI
Audio & Transcript	Audio: Bensound-creativeminds.mp3 Transcript: Salam Olahraga

	Hallo teman-teman, Pada video pembelajaran ini akan kami paparkan pembelajaran gerak dasar renang gaya bebas. Tahap 1 Gerakan meluncur Tahap 2 Gerakan tungkai Tahap 3 Gerakan lengan Tahap 4 Pernapasan Tahap 5 Koordinasi
Duration	50 seconds

Table 3. Display of Gliding Movement






Visual	
Verbal	GERAKAN MELUNCUR
Audio & Transcript	Audio: Bensound-creativeminds.mp3
Visual	
Verbal	<ol style="list-style-type: none"> 1. Kaki ditebuk menempel pada dinding kolam 2. Dorong kaki ke arah depan 3. Posisi tubuh sejajar dengan permukaan air 4. Lengan lurus dan telapak tangan menempel
Audio & Transcript	Audio: Bensound-creativeminds.mp3 Transcript: Untuk melakukan gerakan meluncur terdiri dari beberapa tahapan: <ol style="list-style-type: none"> 1. Tubuh membelakangi dinding kolam, 2. Kaki ditebuk 3. Dorong kaki tumpuan ke arah depan 4. Pada saat meluncur, posisi tubuh horizontal sejajar permukaan air 5. Kedua lengan lurus dengan telapak tangan menempel
Duration	50 seconds

Table 4. Display of Leg Movements

Visual	
Verbal	GERAKAN TUNGKAI
Audio& Transcript	Audio: Bensound-creativeminds.mp3
Visual	
Verbal	<ol style="list-style-type: none"> 1. Pangkal paha 2. Luruskan tungkai 3. Lakukan dengan keras 4. Lakukan dengan santai
Audio& Transcript	<p>Audio: Bensound-creativeminds.mp3</p> <p>Transcript: Pembelajaran gerakan tungkai terdiri dari beberapa tahapan:</p> <ol style="list-style-type: none"> 1. Ayunkan tungkai secara bergantian 2. Gerakan ayunan dimulai dari pangkal paha 3. Pada gerakan menendang ke bawah luruskan tungkai 4. Gerakan kaki ke atas dilakukan dengan sikap yang lurus. 5. Kekuatan ketika gerakan tungkai ke bawah dilakukan dengan keras sedangkan pada gerakan tungkai ke atas dilakukan dengan santai.
Visual	




Verbal	
Audio& Transcript	<p>Audio: Bensound-creativeminds.mp3</p> <p>Transcript: Proses pembelajaran gerakan tungkai yang selanjutnya adalah mempraktikkan pembelajaran tahap pertama di dalam air. Posisi tubuh menghadap ke lantai dengan bagian pinggul ke bawah berada di dalam air. Lakukan gerakan ayunan tungkai secara bergantian.</p>
Visual	
Verbal	
Audio& Transcript	<p>Audio: Bensound-acousticbreeze. mp3</p> <p>Transcript: Peserta didik melakukan gerakan meluncur, dengan mengayunkan tungkai secara bergantian.</p>
Duration	2 minutes and 31 seconds

Table 5. Display of Arm Movement

Visual	
Verbal	GERAKAN LENGAN
Audio& Transcript	<p>Audio: Bensound-acousticbreeze. mp3</p>
Visual	
Verbal	<ol style="list-style-type: none"> 1. Posisi lurus 2. Posisi badan agak sedikit miring



Audio& Transcript	<p>Audio: Bensound-acousticbreeze. mp3</p> <p>Transcript: Gerakan lengan dapat dilakukan dengan beberapa tahapan:</p> <ol style="list-style-type: none"> 1. Ayunan lengan secara bergantian. 2. Ayunkan lengan dengan telapak tangan menghadap ke dasar kolam 3. Dorong lengan lurus ke belakang hingga ibu jari menempel pada paha. 4. Keluarkan lengan dengan posisi lurus. 5. Ketika lengan kiri melakukan dorongan dan ayunan maka lengan kanan lurus pada posisi awal. 6. Yang terakhir posisi badan agak sedikit miring.
Visual	
Verbal	
Audio& Transcript	<p>Audio: Bensound-acousticbreeze. mp3</p> <p>Transcript: Selanjutnya pembelajaran gerakan lengan menggunakan pelampung.</p>
Duration	1 minutes 20 second

Table 6. Display of Breathing

Visual	
Verbal	PERNAPASAN
Audio& Transcript	<p>Audio: Bensound-acousticbreeze. mp3</p>
Visual	



	
Verbal	<ol style="list-style-type: none"> 1. Berpegangan pada dinding kolam dengan posisi lengan lurus. 2. Posisi mengambil napas
Audio& Transcript	<p>Audio: Bensound-acousticbreeze. mp3</p> <p>Transcript: Latihan pernapasan dilakukan beberapa tahapan:</p> <ol style="list-style-type: none"> 1. Peserta didik berpegangan pada dinding kolam dengan posisi lengan lurus. 2. Ambil napas melalui mulut 3. Keluarkan saat kepala menoleh ke dalam air
Visual	
Verbal	<p>Audio: Bensound-summer. mp3</p> <p>Transcript: Latihan pernapasan selanjutnya menggunakan pelampung. Tahapan yang perlu diperhatikan yaitu:</p> <ol style="list-style-type: none"> 1. Saat lengan kiri mendayung, kepala menoleh ke kiri untuk mengambil napas 2. Saat lengan kiri kembali ke dalam air, putar kepala untuk membuang napas
Duration	52 seconds

Table 7. Display of Coordination





Visual	
Verbal	KOORDINASI
Audio& Transcript	Audio: Bensound-summer. mp3
Visual	
Verbal	KOORDINASI
Audio& Transcript	Audio: Bensound-summer. mp3 Transcript: Setelah mempelajari dan menguasai ke empat pembelajaran dasar renang gaya bebas, maka kita akan melakukan gerakan koordinasi yaitu berenang gaya bebas. Beberapa hal yang perlu diperhatikan ketika berenang gaya bebas: 1. Lakukan gerakan meluncur terlebih dahulu 2. Ayunkan tungkai dan lengan 3. Pada saat lengan kiri berada dipermukaan air dengan posisi lurus, kepala menoleh ke kanan lalu mengambil napas menggunakan mulut. 4. Gerakan tungkai, lengan, dan bernapas dilakukan seirama
Duration	1 minutes and 30 seconds

Table 8. Display Closing

Visual	
Verbal	
Audio&Transcript	<p>Audio: Bensound-summer. mp3</p> <p>Transcript: Demikian Video Pembelajaran dari kami, Semoga bermanfaat bagi teman-teman semuanya. Salam Olahraga</p>
Visual	
Verbal	<p>Biodata Peneliti Nama : Eko Ari Anto Tempat, Tgl Lahir : Manna, 11 Januari 1993 Jenis Kelmain : Laki-laki Agama : Islam Alamat : Jl. Jend. Sudirman, Bengkulu Selatan, Bengkulu Pendidikan : Mahasiswa Pascasarjana Ilmu Keolahragaan UNS</p>
Audio & Transcript	<p>Audio: Bensound-summer. mp3</p>
Duration	10 Seconds

4. Conclusion

The results of the assessment from media and material experts and PE teachers towards the development of video modelling which had been through two trials experiment and semi-experimental effectiveness test is shown that the video modelling is categorized as very good product with above 80% percentage score. This means that the video modelling has been properly used and declared as effective freestyle swimming learning media for high school students.

References

- Ali, Mohammad. 2010. *Metodologi dan Aplikasi Riset Pendidikan*. Bandung: Pustaka Cendekia Utama.
- Arifin, Bustanol. 2013. *Pengembangan Gerak Dasar Renang Untuk Anak Sekolah Dasar*. Jilid 1, Nomor 1, hlm. 1-8. *Jurnal Pemikiran dan Pengembangan SD*.
- Anandita F.P. 2010. *Mengenal Renang*. Perpustakaan Nasional: Katalog Dalam Terbitan (KDT).
- Badan Standar Nasional Pendidikan. 2006. *Standar Isi Sekolah Menengah Atas dan Madrasah Aliyah*. Jakarta. Departemen Pendidikan Nasional.
- Biro, Melinda & Peter. Swimming. 2015. *Person responsible for publishing: the rector of Eszterházy Károly College EKC Líceum Press*
- Borg W. R., & Gall M. D. 2007. *Educational Research: Instructor's Manual and Test Bank (8th Ed.)*. New York: Pearson
- Nazir, Moh. 2013. *Metode Penelitian*. Bogor: Ghalia Indonesia.
- Sudjiono, Anas. 2013. *Pengantar Evaluasi Pendidikan*. Jakarta: Rajawali Press.
- Sugiyanto, FX & Supriyanto, Agus. 2005. *Dasar Gerak Renang*. Universitas Negeri Yogyakarta, Yogyakarta.
- Sugiyono, 2015. *Metode Penelitian dan Pengembangan: Research and Development*. Bandung: CV. Alfabeta.
- _____. 2012. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: CV. Alfabeta.
- _____. 2011. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: CV. Alfabeta.

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